DOCUMENT RESUME

ED 114 925 EA 007 647

AUTHOR Dijkgraaf, C.
TITLE Advisory and Information Services.
INSTITUTION Information Centre for School Building, Potterdam (Netherlands).
PUB DATE Sep 74
NOTE 20p.; Photos may reproduce poorly
JOURNAL CIT International School Building News; v8 n1 Sep 1974

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS *Architectural Programing; *Architectural Research; Cost Effectiveness; Elementary Secondary Education; Facility Requirements; *Information Centers; *School Construction; School Design; School Improvement; *School Planning
IDENTIFIERS Netherlands

ABSTRACT

In 1956 the Foundation Information Centre for School-Building (ICS) was established to give information and advice in the field of school building in the widest sense by study and research, documentation, the development of new prototypes, the organization of exhibitions and meetings, and cooperation with other institutes in the Netherlands and abroad. The activities of the ICS are documented in this bulletin. (Author/MLF)

**********
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
**********

ED 114 925

I.C.S. bulletin 14/74
September 1974

**advisory and information services**

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

EA 007 647

Cor Dijkgraaf

published by: foundation information centre for school building
weena 700, p.o. box 299, rotterdam-3003, the netherlands, tel. 010 - 116181

The contents of this publication may be copied, provided the source be given clearly and accurately.

## Contents


page

5 1. What is the I.C.S.?

7 2. Research
*Documentation and evaluation*
*Functional aspects*
*Technical aspects*
*Building costs*

11 3. Information
*I.C.S.-Bulletins*
*Information sheets*
*Verbal information*
*Library*
*Study meetings and exhibitions*
*Working models*

13 4. Development and advisory work
*Programming and support of school building projects*
*Long-term planning*
*Renovation and re-modelling*
*New building systems*
*Cost control*
*Equipment and furniture*
*Multi-functional accommodation*

19 5. Cooperation with other institutes
*In the Netherlands*
*Abroad.*

20 Appendix
*I.C.S. staff*

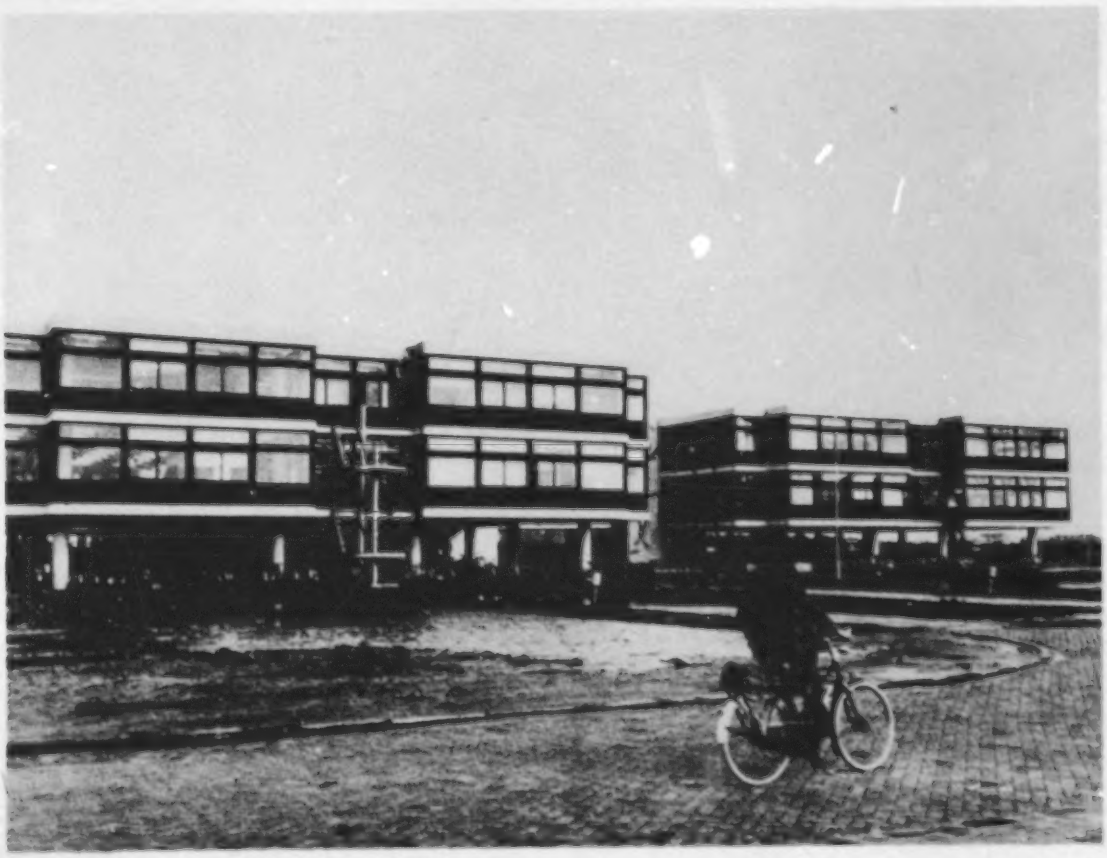
## 1. What is the I.C.S.?

In 1956 the Foundation Information Centre for School-building (I.C.S.) was set up on the initiative of the Netherlands Ministries of Education and Science, Housing and Physical Planning and the Bouwcentrum in Rotterdam.

Especially the Ministry of Education and Science felt the need for a study and research institute.

In contrast to similar institutes, already existing abroad, an independent subsidized institute was chosen and not a ministerial department.

"Johannescollege", den Helder



The aim of the Foundation is to give information and advice in the field of school building in the widest sense by:

- Study and research,
- documentation,
- the development of new prototypes,
- the organisation of exhibitions and meetings, and
- cooperation with other institutes in the Netherlands and abroad.

The Foundation is a non-profit-making organisation.

The Board of the Foundation consists of about 20 members, appointed by the respective Ministries and institutions or appointed in their own right.

An Advisory Committee consisting of experts from universities, educational institutes, etc., assists the Board.

The appendix gives a survey of the I.C.S. staff.

The office of the I.C.S. is situated in the Bouwcentrum (Building Research Institute) in Rotterdam, thus creating the possibility of cooperation with other departments of the Bouwcentrum.

The study and research work of the I.C.S. is mainly development work for the Ministry of Education and Science.

Advisory work for new school building projects is done as a rule for private school boards or municipalities.

The main sources of income for the Foundation consist of:

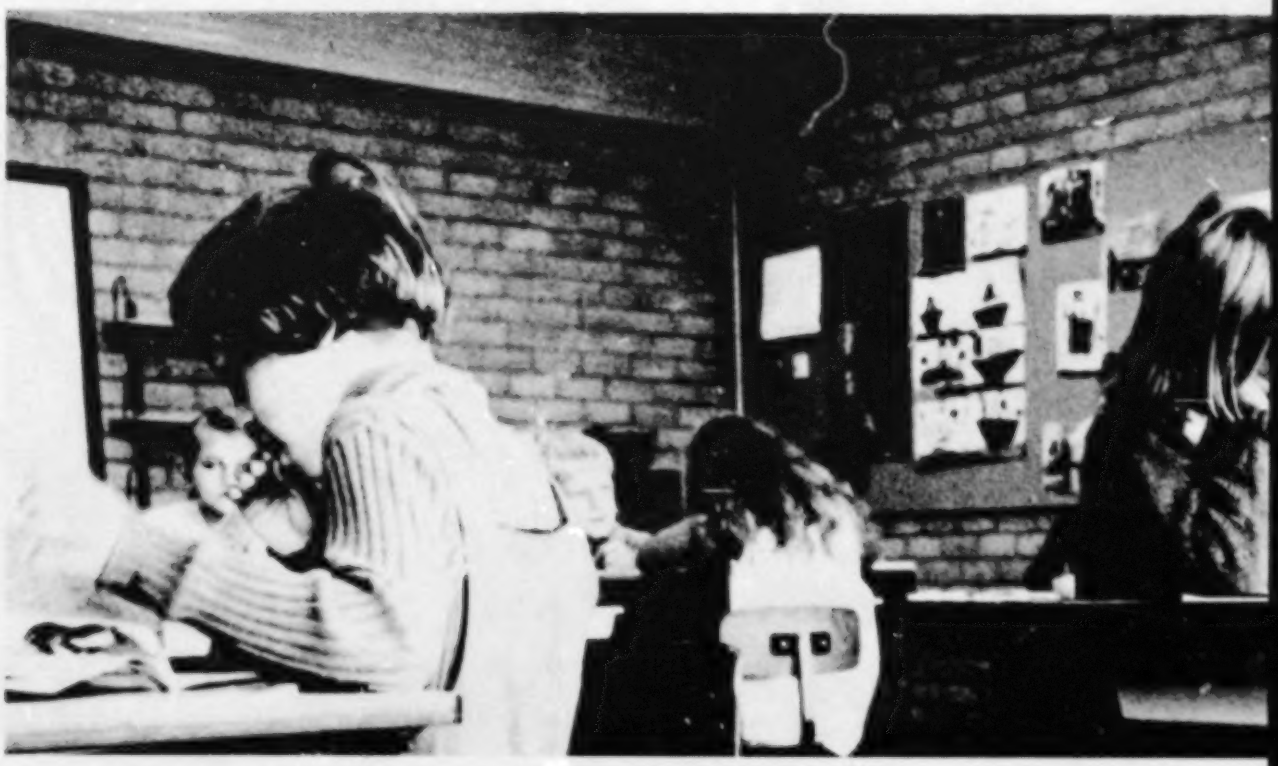
- Subsidy from the Ministry of Education and Science for study, research, information and advisory work and
- remuneration for advisory work for contractors, private school boards and municipalities.

## 2. Research

The I.C.S. started with development work for projects concerning primary education (from 1963 onwards) and continued with projects for secondary education (from around 1968). As these projects were being dealt with, it became obvious that there was a great need for more research, especially in the field of secondary education. Today the greater part of the research work is aimed at its practical application to project work.

*Documentation and evaluation.* The approach to a new subject of study requires first and foremost an investigation into, and an analysis of, common occurrences, experience and results. The evaluation of results reached in completed projects is an obvious condition of controlling continuing developments, while the documentation and publication of eligible research data constitute an indispensable aid in information and advisory activities both for internal and external use.

"Johannescollege", den Helder



Depending on the objective, three categories may be distinguished:

1. For internal studies, among other things:
- Analysis of educational activities, time-tables, sizes of groups;
- analysis of use situations and aspects of use-value;
- study of literature, and collection of data from other countries.

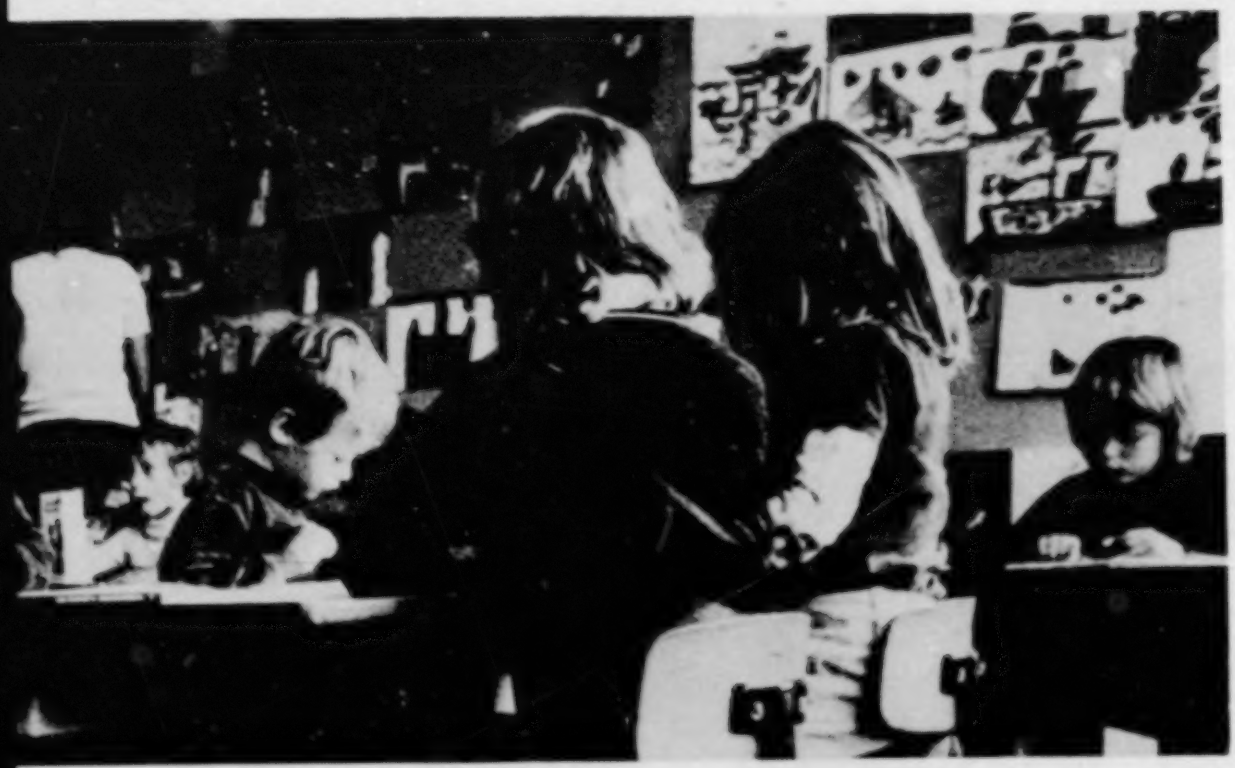
2. As independent subjects of study, or on the commission of third parties, among other things:
- Evaluation of results reached in building projects;
- analysis of use values, technical quality and cost of, for instance, building systems, and
- investigation into local and or regional quality and quantity of accommodation for the various educational categories.

3. As an aid in instruction and information, among other things:
- Comparative documentation of school-building plans, and documentation of subsidiary subjects such as costs, addresses, bibliographies, building systems, etc.

It is obvious that many documentary data either have a temporary nature or are not universally applicable. Insofar as this is important for third parties, data are outlined in information sheets, which are further described in chapter 3.

Important documentary activities recently developed are:
- Comparative documentation of school building systems (80);
- comparative documentation of standard gymnasiums (grammar schools) for secondary education (40); and
- investigation into activities and educational situations in infant and primary education (study entitled "Buildings for primary education").

An evaluation to be completed shortly concerns the comprehensive school in Lelystad.



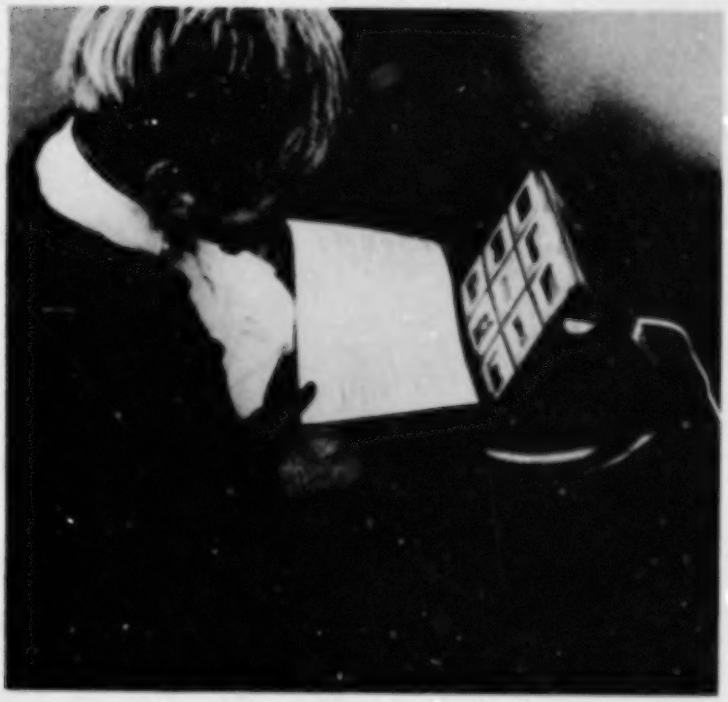
*Functional aspects.* The studies in this field are mainly directed towards the spatial requirements to be imposed on an educational building.

Starting points are:
- The educational use situation (activities, use of furniture and aids);
- the educational organisation (group sizes, time-tables, tables of lessons, time-schedules); and
- the future value (practical and theoretical models for alternative use situations and organisations.

Among recent subjects for study that have been provisionally rounded off are:
- The accommodation of the new primary education;
- the analysis of sites for general continued education;
- open standardisation;
- building "flows" for gymnasiums for general continued and pre-university education and for vocational training; and subject rooms for general continued and pre-university education.

Being studied at the moment are:
- Renovation of school buildings;
- multi-functional accommodation; and
- building "flows" for school buildings for general continued, pre-university and vocational education.

*Technical aspects.* Whether a school building can function to its maximum capability depends to a great extent on the technical and physical conditions. Regulations and directives impose many conditions and give many solutions in these fields, although it often appears in practice that functional requirements and wishes are in conflict with certain regulations. It is especially in the field of



lighting and acoustics on the one hand of the flexibility of the building and education on the other hand that almost insoluble problems arise, particularly if the question of cost is included in the considerations. Mutual dependence and interweaving are, in fact, of such a character, that every subsidiary study can be made only in connection with other aspects. This integrated research is particularly important in development projects.

*Building costs.* Cost-conscious research and advice, cost-control methods in the design stage of a building, good proportions between investment and the cost of depreciation and running are three important subjects which continuously play a part in the work of the I.C.S.

In the Netherlands, for example, the fixed-amount method in secondary education and the allowances for infant and primary education in the framework of the Financial Act concerning the State-Municipalities relation, bring about a confrontation between available means and desired quality, both in functional and in technical respects.

For each school-building project, an active cost-control procedure is imperative from the very beginning; and it seems almost superfluous to add that this should aim not only at investment but also at maintenance and running expenses.

As regards cost control in the design stage, the I.C.S., in co-operation with Bouwcentrum departments, has developed an operational method which has already brought about the desired result in a number of building projects.

## 3. Information

An important aim of the I.C.S. is the provision of information in the field of school building in the most extended sense of the term. A great deal of it is of a general nature, but it also consists of giving advice on a concrete situation.

*I.C.S. Bulletin.* Written information of a general nature is given in our I.C.S. Bulletins, although they also aim at giving comprehensive information on various given subjects. So far 14 Bulletins have appeared.

*Information sheets.* Answers and suggestions concerning questions put to us are given in a series of information sheets. Among the aspects explained are:
- Procedures, regulations, directives and recommendations;
- foundation cost;
- addresses of systembuilders and manufacturers of school furniture; furnishing and completing schools and their environment; and plan formulation and flexibility.

*Verbal information.* A considerable part of the information provided by the I.C.S. is concrete information to architects, school boards and municipalities asking for advice on problems facing them when carrying out school building projects. Every year there are several hundred discussions and consultations which, provided they are held in Rotterdam, do not entail any cost on the part of the seeker of advice, while if they are held elsewhere in the country, the cost incurred is asked for. This also applies to lectures, informative meetings etc.

*Library.* The I.C.S. has a library dealing with school building both in the Netherlands and abroad. Although it is primarily for internal use, it may be freely consulted by any interested person. For organisational reasons the borrowing of books and documents is kept to a minimum, but inspection and copying of articles is always possible, by appointment.

*Study meetings and exhibitions.* The I.C.S. organises occasional study days and exhibitions, usually within the framework of a specialised team. It also frequently happens that the I.C.S. is requested to make a contribution on school building during study and information meetings where education or the building industry are brought up for discussion in a wider context.

*Working models.* The I.C.S. has at its disposal a workshop with models with which, to a scale of 1:20, every type of ground plan (including complete furnishing) of a school or part of a school may be reproduced. These models aim at giving a more visual presentation of a two-dimensional drawing, especially in view of the various possibilities of placing the furniture. The material is available free of charge to everyone, by appointment.

## 4. Development and advisory work

Development work connects theoretical study with practice. The results obtained in study and research must be applied in functional and/or technical prototypes, so that the insight acquired may be tested in practive and new ideas realised. Essential requirements of development work are that, in all stages of preparation and realisation of the construction of school buildings, close attention is paid to the financial consequences and planning, and that experience gained during the preparation and realisation of the construction and the use of schools is put on record.

Publication of the results will promote the distribution of the knowledge obtained and its application in other projects.

The difference between development projects and the advisory activities is not always easy to indicate. The criterion is that the State is directly concerned with – and sometimes commissions – development projects, whereas advisory projects generally concern a commission given by a municipality or a school board.

It is the objective of the I.C.S. to transmit as much knowledge as possible in the local situation. Co-operation is given, within local circumstances, possibilities and difficulties – that differ in each situation – to the realisation of the school building, and this usually in a team.

*Programming and support of new building projects.* An important part of the activities of the I.C.S. concerns the programming and support of new building projects, both in the sector of development and in that of advice. The building team then works on the realisation of a school building which will meet the requirements to the greatest possible extent, requirements imposed on the building from the point of view of educational efficiency.

The activities of the I.C.S. may include the following:

1. Consultations on educational and functional starting points recorded first in an overall and later in a final programme of requirements. These programmes have the following parts:

- Educational concept; functional and organisational starting-points;
- main construction of the building;
- site provisions and surface divisions;
- programme of spaces in the building;
- communications diagram;
- explanation of the programme of spaces with provisional drawings;
- flexibility;
- matters of procedure;
- technical and physical aspects;
- finishing; and
- maintenance.

2. Supporting the design activities (provisional and final designs) in order to obtain a proper transformation of programme of requirements into design. In this stage, the I.C.S. has the following functions:

– Comparing the design with the programme of requirements;
– making provisional drawings, with alternative proposals;
– preparing budgets for foundation and building costs;
– making an overall time-table;
– comparing materials selection with use requirements and maintenance aspects, and
– comparing the project with Government regulations.

3. Participation in discussions with school boards, the Ministry, building inspectors and similar authorities during the period of preparation of construction and the approval procedure.

4. Consultations (ad hoc) during construction, insofar as supplementary data are required concerning use aspects such as choice of finishes, colours, situation of electric points, details of building furniture etc.

5. Preparation of detailed programme of requirements concerning furniture, which encompasses:
– Indication of number and types of furniture;
– proposals as to arrangement;
– cost estimate, and
– consultation with users, building team, architect, inspectors, manufacturers or suppliers of school furniture etc.

Limited, or even more extensive activities may be also developed in the fields of cost control, organisation and process control in further consultation with those concerned.

When new buildings for secondary education are being prepared, Point 1 (preparation of a programme of requirements) is usually divided into two stages. In the first stage, a critical investigation is made into the starting-points, such as a prognosis of the number of pupils, tables of lessons, and available site. On the basis of the prognosis of numbers of pupils, alternative tables of lessons are drawn up and the resulting consequences for the school building are determined. The purpose of this is to ensure such a flexibility of the school building that it will be easy to adapt it in future to new educational situations or requirements (such as the introduction of team teaching or a lowering of the standard of class division).

If what is called the "fixed amount method" is used, the above procedure is also necessary so as to be able to explain why and in what way the plan of classrooms indicated by the Ministry of Education and Science has not been adhered to.

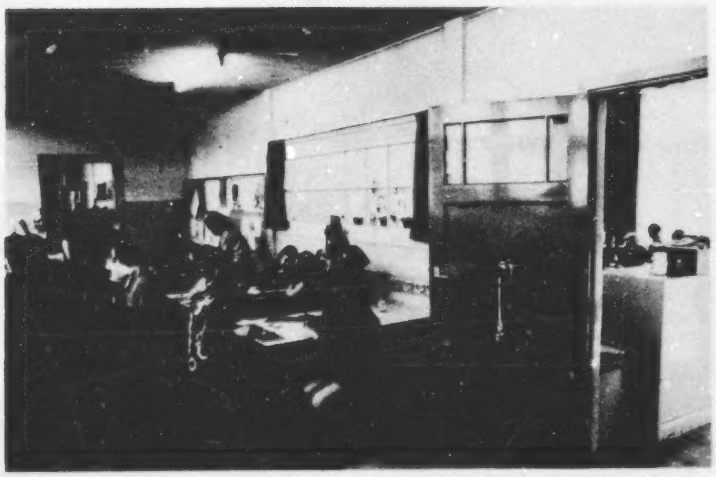
The results of the calculations are worked up into a provisional programme of requirements in which are indicated among other things:
– Spatial arrangements for present and future educational situations;
– sizes of spaces and mutual relations, and
– the requirements to be imposed on the site.

Parallel to the elaboration of the schematic design by the architect, a final programme of requirements is formulated containing among other things:
– A final indication of spaces and relations (if what is called the accompanied method is chosen, the programme of spaces will naturally agree with the plan for the classrooms established by the authorities after consultations); consultations);
– requirements to be imposed upon the interior and finish;
– solutions to furnishing problems.

*Long-term planning.* In both the regional and the local contexts, the need for long-term planning of accommodation for education is growing. Problem areas prompting a forward-looking approach are:
– Educational changes and new forms of education;
– enlarged scales and co-operation between educational institutes;
– drastically changed percentages of interest as regards subjects;
– increased need for space on the part of the pupil;

– aging of town quarters and lowering of the birth rate;
– increasing local and regional co-operation;
– abandonment, renovation or change of purpose of existing accommodation, and
– relationship between investment and running.

The I.C.S. can contribute towards long-term planning by analysing present accommodation, the planning of future spatial needs, the financial consequences, and the possibilities of renovation and changes in purpose.



dr. Bosschool te Utrecht

*Renovation and re-modelling.* It is to be expected – as in house building – that the renovation of old buildings will receive increasing attention. This does not in the first place mean repairing and technical rehabilitation, but more drastic renewals, so that a building is functionally adapted to the requirements of the time.

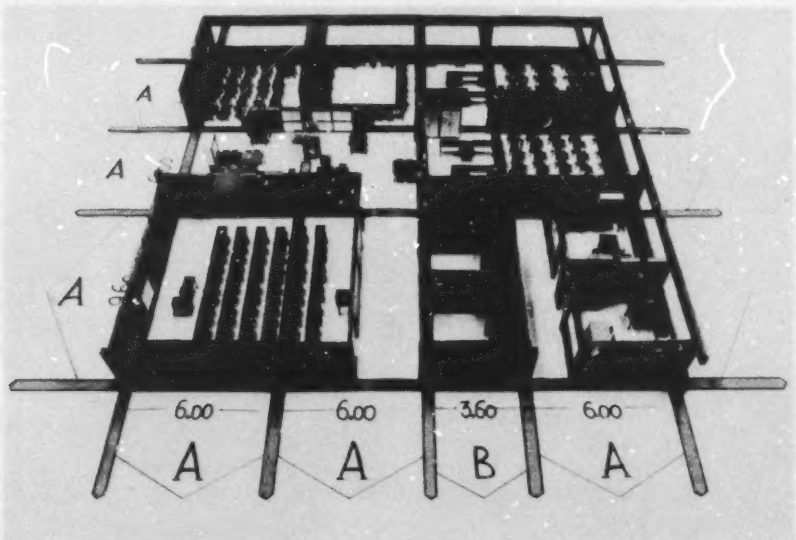
The educational developments of the past 5 to 10 years have created a growing gap between the quality of existing accommodation and that required. Seen from the technical and qualitative points of view, many school buildings are in an excellent state, but from the point of view of space they often constitute a restriction for education.

It is especially with schools for primary education, which are often housed in very inadequate buildings, that renovation is hampered by the financial regulations made between State and municipalities, so that compared with new construction it is very costly as a result. For a number of years now, the I.C.S. has guided and supported certain renovation projects, such activities including preliminary investigation into possibilities of spatial repartitioning, along with alternatives, and an outline of their technical and financial consequences.

*New building systems.* The building systems hitherto developed have generally been what are called "closed systems", by which was meant that they were based on a standard school size and ground plan. Such systems, however, do not provide permanent solutions to problems caused by changing educational situations.

The I.C.S. receives requests from a number of building firms to advise on the development of new open building systems, a development following the study entitled "Open Standardisation". The combined characteristics of these new building systems are:
– Modular dimensioning;

- distinction between substructure and finishing elements;
- applicability to various sizes of school;
- internal flexibility;
- optimum uses for future users, and
- low building costs.



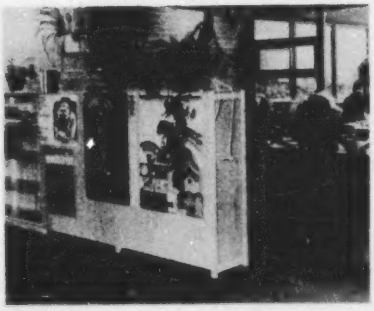

*Cost control.* That proper control of the building cost during programming, designing and realisation on the building site is important and surely indeniable and for school buildings particularly important. However, on examining how the process of cost control takes place in practice, countless problems are met that have not adequately been solved.

When preparations are begun the maximums for building cost and investment are usually known. Where these maximums are determined by the State, they are given in very minutely calculated amounts. But an estimate that is reliable to the smallest degree is in many cases not available before the completion of the final design, by which time work has been going on for about a year. The results of calculations made by the contractor are available even later. In the advanced stage of preparation, which the building is then in, possible necessary economies will create many insoluble problems which in turn all too often cause considerable delays, loss of quality, a decision not to build at all, or hurried recourse to emergency measurements.

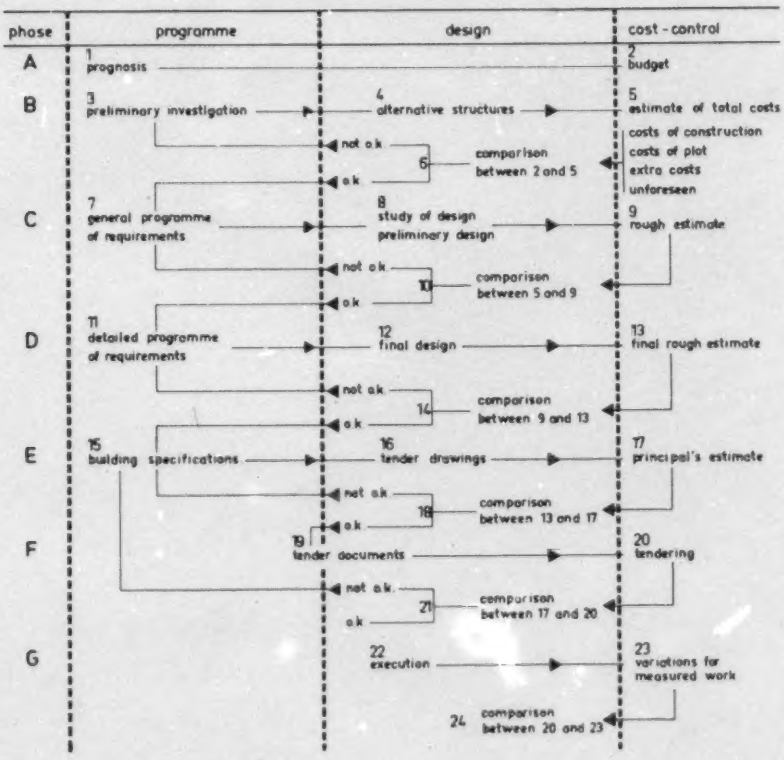
To avoid these difficulties, the I.C.S., in co-operation with the Bouwcentrum, has developed a method of cost control that has been made operational in a number of projects with the aid of a computer programme.

*Equipment and furniture.* A school building in which many and varied educational situations and activities of the children are taken into account from the point of view of space will function well only if the selection of equipment and furniture has been given much attention. The aspects most relevant are the flexibility of its use and the mobility of storage elements and wall parts.

From both the functional and the technical points of view, a continuing integration of building and furnishing is to be expected. If the structural flexibility increases, many parts of the detachable units may have double functions. In the majority of cases, the I.C.S. is also being requested to advise on appointments (types, numbers, sketches of situations, estimates etc.).



Comprehensive school
in Lelystad




Procedure of Cost-control

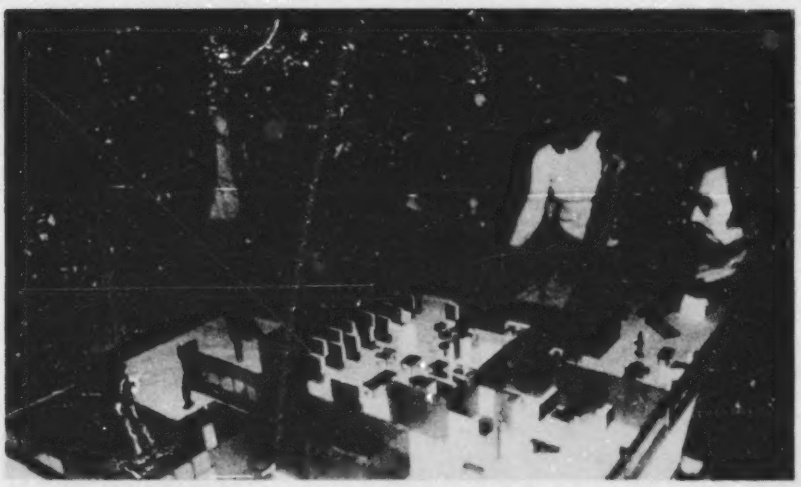
*Multi-functional accommodation.* As a rule, multi-functional accommodation is understood to mean a school building that may serve the community outside school hours – with or without some extra facilities. This conception has financial and economic as well as idealistic reasons: why should not a school building be open for more than its usual 5 hours a day?

When education and the building itself show a conventional structure, this out-of-school use is easier to organise. The community room, the crafts room, the gymnasium, the teachers' room and possibly also the classrooms are used out of school hours. But as soon as the conventional structure of the building is abandoned and the aim is a combination of educational rooms in which no longer must teaching in class but mobile and flexible teaching be able to function, there are no "neutral" rooms in the building. Every square metre of the school is 100% dwelling and working space for the child.

Equipment (furniture and aids) is accurately attuned to efficient and immediate use in behalf of many and varied activities. Teaching and learning aids are stored in sight and within reach. The placing and grouping of tables, chairs, cabinets etc., is not uniform, but consciously chosen for function (size of group, age, activities, use requirements) and spatial circumstances. For a really multi-functional and usable accommodation it is no longer possible to put the question: what spaces are there and how can they be best used? Just the opposite question needs to be asked: what activities take place (simultaneously or not), what are the overlapping activities, what is the total need for space (surface, relation, techno-physical conditions)?

A second important condition is that the accommodation for both education and communal activities must not be approached from the angle of the incidence of education only – neither as to philosophy and concept nor as to financing and responsibility.

The I.C.S. has gained experience in about 10 of such projects for primary and secondary education and has developed methods to formulate the programmes for these multi-functional centres.



Planning with teachers

## 5. Co-operation with other institutes

Interest in school building is on the increase, at home as well as abroad. Especially is the multi-disciplinary character of school building becoming more and more prominent in working groups and study committees. Below are listed the most important institutes with which I.C.S. is co-operating.

*In the Netherlands*

*Bouwcentrum.* The co-operation with Bouwcentrum is very close, especially with the study- and researchdepartments and pertains subjects such as programme of requirements, building costs, building physics etc.

*Working Committee of the Ministry of Education and Science.* This committee advices the minister on the building consequences of different schooltypes as result of the new Education Act. In this workingcommittee are represented educationists, schoolboards, architects and I.C.S.

*Working Committee Multi-Functional Accommodations.* This working committee was set up by the Ministry of Education and Science and the Ministry of Culture, Recreation and Social Work.

*School Building Study Group of the Netherlands Architects Association.*

*Delft and Eindhoven Technical Universities.*

*Netherlands' Normalisation Institute and International Organisation for Standardization (I.S.O.).* (specially school furniture).

*Netherlands' Institute for Audio-Visual Aids (N.I.A.M.).* This institute is situated in the Bouwcentrum and has established close co-operation with I.C.S.

*Abroad*

*Organisation for Economic Co-operation and Development (OECD).* Since 1962 I.C.S. has been co-operating with the OECD, originally in setting up economic aid programmes for the South European countries. Since 1971 the OECD has been charged with the implementation of a school building programme in 15 of the OECD-countries.

*Council of Europe.* At the request of the European Ministers of Education two conferences were held in Austria and the Netherlands respectively. The I.C.S. took part in organising them and published the final reports "Educational Aspects of School Building".

*European countries.* Regular study tours have been made to institutes and new school buildings in England, Sweden, Germany and Belgium.

Appendix

*I.C.S. Staff*

| | |
|---|---|
| director: | Th. J. Geursen |
| deputy-director: | C. Dijkgraaf, architect |
| co-operators: | N. C. G. van Bossum<br>G. A. Th. Fränzel<br>Mrs. M. ten Grotenhuis-Zeeman<br>H. M. Hentzen<br>A. den Hoedt<br>P. Hoogstraten<br>C. Kamp<br>W. Rip<br>P. L. Wentzel |
| secretariat: | miss M. M. de Boer<br>mrs. J. G. Muilwijk-Sap<br>mrs. J. M. Speelman-Verheul |
| educationist: | C. van den Bosch |

21